

George H. Horn in the Museum at Philadelphia (except Baja Calif.).

Charles Wiit in Museum at Philadelphia, Pa.

Thomas L. Casey in U. S. Nat. Mus., Washington, D. C.

Hugo Soltau in U. S. Nat. Mus., Washington, D. C.

John B. Smith in U. S. Nat. Mus., Washington, D. C.

E. A. Schwarz in U. S. Nat. Mus., Washington, D. C.

Charles V. Riley in U. S. Nat. Mus., Washington, D. C.

H. K. Morrison in U. S. Nat. Mus., Washington, D. C. (part).

Martin L. Linell in U. S. Nat. Mus., Washington, D. C.

Fred Knab in U. S. Nat. Mus., Washington, D. C.

Geo. W. Belfrage in U. S. Nat. Mus., Washington, D. C.

Henry Ulke in Carnegie Museum, Pittsburgh, Pa.

John Hamilton in Carnegie Museum, Pittsburgh, Pa.

F. H. Snow in University of Kansas, Lawrence, Kans.

E. G. Love in Buffalo Society of Natural History.

Charles Palm in American Museum of Nat. Hist.

Chris H. Roberts in American Museum of Nat. Hist.

Gustav Beyer in Howard Notman Collection.

CHARLES W. LENG.

MIGRATION OF PYRAMEIS CARDUI

The unprecedentedly huge migration of Painted Lady Butterflies *Pyrameis cardui* from Baja California in 1924 was duly noted by me in this JOURNAL. As a rule these insects are comparatively scarce for several years following their extreme abundance.

The season 1925 ran true to form in this respect. I am out in my car, crossing large distances almost daily, I am in a position to note comprehensively. During the entire spring I did not see more than a dozen. At mid-summer I saw a few, invariably ovipositing on nettle. In the fall I saw fewer than 25.

March 7, 1926, I looked from the car window at Barstow, it being about breakfast time. The weather, which had been frosty across New Mexico and cold through Arizona, was balmy and, to my surprise, the air was filled with butterflies. I got off and noted that nearly all were our friends *P. cardui*. A few *P. coenia* and *Pieris* sp. with an occasional skipper made up the rest.

March 8 and 9 in Orange County *P. cardui* were occasional. March 12 they became abundant enough to be recordable as a migration.

In numbers they probably were not a third of the 1924 swarms. They followed a distinct path northward. Using a square acre just in front of my door as a unit for calculation, I estimate that all day from 1,000 to 1,500 individuals were present. The wild onion bloom was very abundant and each blossom carried a visitor. I estimate that each set moved onward and was entirely replaced each ten minutes (on an average). Moreover, they kept in flight and were attracted in numbers to the lighted windows, as late as 10:00 P. M. This would work out that 65,000 to 125,000 individuals passed a 200 feet wide space in the day. The whole path of migration (ocean to Colorado River) is a minimum of 125 miles. Certainly over 300,000,000 individuals a day moved northward from Baja California. March 13 they were about as abundant at Laguna Beach as the day before. It was a sultry day, very hot in the interior. A great many automobiles arrived at Laguna from considerable distances. The radiator of each one was decorated or entirely covered with *P. cardui*, caught and desiccated by the indrawing fan.

The individual specimens were seldom worn or looked old. This is rather different from 1924, when for the first ten days almost all were much battered. Weather conditions were more favorable in 1926, there being no high winds. I observed no ovipositing but this is presumably due to absence of food plant, even wild sunflower being locally absent.

March 14. *P. cardui* still abundant but not enough to indicate anything but the tail end of the movement.

R. P. Dow.